

REMARKS

Applicants submit this Reply in response to the non-final Office Action mailed October 20, 2009. Before this response, claims 17 and 19-38 were pending, of which claims 17 and 36 were independent. In this response, Applicants have amended independent claims 17 and 36 and added a new independent claim 39 and new dependent claims 40-42 to round out the protection for the invention to which they are entitled. Support for the claim amendments may be found in the specification, for example, at page 11, line 34 to page 12, line 5, page 14, lines 10-22, and Figure 3. As a result of Applicants' amendments, claims 17 and 19-42 are currently pending, of which claims 17, 36, and 39 are independent.

In the Office Action of October 20, 2009, the Examiner rejected claims 36-38 under 35 U.S.C. § 101 as not falling within one of the four statutory classes of invention. The Examiner rejected claims 17 and 19-35 under 35 U.S.C. § 112, ¶ 2 as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. The Examiner rejected claims 17, 20, 21, 32-34, 36, and 37 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,456,847 ("Lilja et al.") in view of U.S. Patent No. 7,151,933 ("Chen et al."). Finally, the Examiner rejected claims 22-31, 35, and 38 under 35 U.S.C. § 103(a) as being unpatentable over Lilja et al. in view of Chen et al. and further in view of U.S. Patent No. 6,940,827 ("Li et al."). Applicants respectfully traverse the pending claim rejections and request reconsideration of the application, as presently amended.

Rejections Under 35 U.S.C. § 101

The Examiner rejected claims 36-38 under 35 U.S.C. § 101 because, allegedly, “[t]he instant claims 36-38 neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.” Office Action dated October 20, 2009, at ¶ 4. The Examiner further argued that “the claims (i.e., particularly claim 36) recite purely mental steps (transmitting, receiving and changing data) without tying the steps to one of the four statutory categories of invention recited in USC § 101.” *Id.*

Although Applicants respectfully traverse the basis of the pending Section 101 rejections, Applicants have amended independent claim 36 to expedite prosecution. In particular, Applicants have amended claim 36 to recite, for example, steps of “providing, using at least one base radio station in the at least one macrocell, the packet data transmission service using a first type of radio access” and “providing, using at least one base radio microstation in the at least one microcell, the packet data transmission service using a multi-carrier radio access different from the first type of radio access.”

In view of Applicants’ amendments to independent claim 36 (and thus also to its dependent claims 37-38), the claimed providing steps are not “purely mental steps” as alleged in the Office Action. Office Action at ¶ 4. To the contrary, the claimed providing steps, as amended, must be performed “using at least one base radio station” and “using at least one base radio microstation.” Because the claimed base radio station and base radio microstation are properly tied to the statutory classes recited in 35 U.S.C. § 101 (“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter . . .”), the amended steps in claims 36-38 cannot be “purely mental steps,” i.e., someone cannot perform the claimed steps entirely

mentally without using at least a base radio station and a base radio microstation as claimed. See, e.g., M.P.E.P. § 2106(IV)(A) (explaining that a process is patent-eligible under § 101 when it “includes a new use of a known process, machine, manufacture, composition of matter, or material”); see also 35 U.S.C. § 100(b). Accordingly, the Section 101 rejections of claims 36-38 should be withdrawn.

Rejections Under 35 U.S.C. § 112, ¶ 2

The Examiner rejected independent claim 17 under 35 U.S.C. § 112, ¶ 2 because the phrase “capable of” allegedly renders the claim indefinite. Office Action at ¶ 6. Claims 19-35 were rejected on the same grounds due to their dependencies on independent claim 17. Although Applicants respectfully disagree with the pending Section 112 rejections, in this response Applicants have amended independent claim 17 to remove the phrase “capable of.” In view of Applicants’ amendments, the rejections under 35 U.S.C. § 112, ¶ 2 should be removed, as the basis for these rejections no longer exists.

Rejections Under 35 U.S.C. § 103(a) of Independent Claims 17 and 36

Applicants respectfully traverse the Section 103(a) rejections of independent claims 17 and 36. To establish a *prima facie* case of obviousness, “All Claim Limitations Must Be Considered.” M.P.E.P. § 2143.03 (8th ed., rev. 6, Sept. 2007). More specifically, the M.P.E.P. requires that “[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.” *Id.* (quoting *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970)). Applicants submit that a *prima facie* case of obviousness has not been established for at least the reason that the cited art, whether taken alone or in combination, fails to teach or suggest every element recited in Applicants’ independent claims 17 and 36.

Independent claims 17 and 36 each calls for a combination including, for example, “at least one base radio station . . . [that] includes at least one protocol structure comprising a first set of protocol levels for transmitting packet data according to a first type of radio access used in the at least one macrocell and a second set of protocol levels for transmitting packet data according to the multi-carrier radio access used in the at least one microcell, the second set of protocol levels including a physical level and at least one protocol level located above the physical level for controlling the multi-carrier radio access.” Applicants respectfully submit that Lilja et al., Chen et al., and Li et al., whether taken singly or in combination, fail to disclose or suggest at least the protocol structure recited in Applicants’ amended independent claims 17 and 36.

First, Lilja et al. fails to disclose any protocol structure(s) implemented at a base radio station. In fact, the word “protocol” does not appear at all in Lilja et al. Because of the absence of any disclosure of a protocol structure or protocol levels in Lilja et al., Lilja et al. necessarily fails to disclose or suggest “at least one protocol structure comprising a first set of protocol levels for transmitting packet data according to a first type of radio access used in the at least one macrocell and a second set of protocol levels for transmitting packet data according to the multi-carrier radio access used in the at least one microcell, the second set of protocol levels including a physical level and at least one protocol level located above the physical level for controlling the multi-carrier radio access,” as claimed.

In the Office Action dated October 20, 2009, the Examiner appears to have characterized the UMTS/UTRAN network architecture depicted in Figures 2 to 4 of Lilja et al. as an alleged protocol structure in a base radio station. See, e.g., Office Action at 8 (“Lilja ‘847 discloses . . . each base radio microstation . . . comprises a

protocol structure (fig. 2 to fig. 4a, UMTS/UTRAN structure, col. 3, lines 61 to col. 4, lines 4)"). The Examiner further characterized the Radio Subsystem and Radio Network Controllers in Lilja et al.'s UMTS/UTRAN network as alleged first and second protocol levels. See, e.g., Office Action at 8 ("a first protocol level (fig. 2 to fig. 4, Radio Subsystem, col. 3, lines 61 to col. 4, lines 4) and a second protocol level (fig. 2 to fig. 4a, see Radio Network controllers controlling the base stations, base station with control entity, col. 4, lines 21-32)"). Applicants respectfully disagree with the Examiner's characterizations of Lilja et al.¹

Lilja et al. discloses that "[t]he structure of a mobile phone system according to the invention used as an example will be described with reference to FIG. 2. The main parts of the mobile phone system include a core network CN, a UMTS terrestrial radio access network UTRAN and a user equipment UE." Lilja et al., col. 3, ll. 59-63. As shown in Figures 2-4 of Lilja et al., the UMTS/UTRAN network comprises different network elements that are physically separated and communicate with one another. Lilja et al., col. 3, line 61 to col. 4, line 4.

Contrary to the Examiner's characterizations, Applicants submit that Lilja et al.'s UMTS/UTRAN network architecture—comprising many different, physically separated network elements in a mobile phone system—cannot reasonably be equated with a protocol structure in a single base radio station or base radio microstation in the network. Indeed, equating an entire UMTS/UTRAN network in Lilja et al. with a protocol structure in a base radio station does not make sense, as a network and a protocol

¹ The Office Action contains a number of statements characterizing the claims and related art. Regardless of whether any such statement is expressly identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

structure are completely non-analogous. Similarly, Applicants submit that the Examiner also erred in equating different physical subsystems in Lilja et al.'s UMTS/UTRAN network with the claimed first and second protocol levels in a single base radio station or base radio microstation. Again, the first and second protocol levels in a single station (or microstation) are not the same as an interconnected network of physically distinct network elements and subsystems in the UMTS/UTRAN network in Lilja et al.

Accordingly, neither the UMTS/UTRAN network nor the interconnected subsystems and network elements in the UMTS/UTRAN network of Lilja et al. corresponds to "at least one protocol structure comprising a first set of protocol levels for transmitting packet data according to a first type of radio access used in the at least one macrocell and a second set of protocol levels for transmitting packet data according to the multi-carrier radio access used in the at least one microcell, the second set of protocol levels including a physical level and at least one protocol level located above the physical level for controlling the multi-carrier radio access," as recited in independent claims 17 and 36.

Chen et al. fails to remedy the above-noted deficiency in Lilja et al. Chen et al. discloses single carrier and multi-carrier protocols in a wireless network and explains that "[a]s would be known to one skilled in the art, a single carrier protocol transmits data in a single frequency band, while a multi-carrier protocol, transmits data in multiple [single carrier] frequency bands." Chen et al., col. 3, line 67 to col. 4, line 3. In Chen et al., the single carrier and multi-carrier protocols are provided by single-carrier base stations BS1 and multi-carrier base stations BS3. See, e.g., Chen et al., col. 11, ll. 18-21; col. 13, ll. 44-46.

While Chen et al. generally discloses single carrier and multi-carrier protocols, Chen et al. is silent regarding any protocol structure or protocol levels used to implement those protocols. In other words, Chen et al. only discloses that certain types of protocols are used by single carrier and multi-carrier base stations, but Chen et al. does not further provide details regarding how those protocols are implemented. For example, Chen et al. does not disclose a physical level, data transmission level, media access control (MAC), etc. Nor does Chen et al. mention at least one protocol structure having first and second sets of protocol levels or any hierarchical relationship between protocol levels within a set of protocol levels. In sharp contrast, each of Applicants' independent claims 17 and 36 explicitly recites, *inter alia*, "at least one protocol structure" having first and second sets of protocol levels where "the second set of protocol levels include[es] a physical level and at least one protocol level located above the physical level for controlling the multi-carrier radio access."

Because Chen et al. is silent regarding how its single carrier and multi-carrier protocols are implemented at the base stations BS1 and BS3, like Lilja et al., Chen et al. also fails to disclose or suggest at least:

"at least one protocol structure comprising a first set of protocol levels for transmitting packet data according to a first type of radio access used in the at least one macrocell and a second set of protocol levels for transmitting packet data according to the multi-carrier radio access used in the at least one microcell, the second set of protocol levels including a physical level and at least one protocol level located above the physical level for controlling the multi-carrier radio access,"

as recited in each of Applicants' independent claims 17 and 36.

Li et al. likewise fails to cure the above-noted deficiency in Lilja et al. and Chen et al. As evidenced by its title, Li et al. discloses a "communication system

using OFDM for one direction and DSSS for another direction.”² Li et al., Title (emphasis added). More specifically, Li et al. requires that the base station only uses OFDM for transmitting signals to the subscriber unit. See, e.g., Li et al., col. 3, ll. 48-54; col. 6, ll. 3-5; Abstract. Therefore, since the base stations in Li et al. use only a single OFDM protocol for transmission, the base stations do not utilize any additional transmission protocol, or a second set of protocol levels for transmitting packet data.

Li et al. does not disclose or suggest the claimed “at least one protocol structure” for multiple reasons. First, because each base station in Li et al. uses only a single protocol (OFDM) for transmitting data, Li et al. expressly teaches away from using “at least one protocol structure comprising a first set of protocol levels for transmitting packet data according to a first type of radio access used in the at least one macrocell and a second set of protocol levels for transmitting packet data according to the multi-carrier radio access used in the at least one microcell,” as recited in independent claims 17 and 36.

Second, Li et al. also fails to disclose at least a “second set of protocol levels including a physical level and at least one protocol level located above the physical level for controlling the multi-carrier radio access,” as recited in independent claims 17 and 36. For example, while Li et al. generally discloses a base station transmitter in which “a media access control (MAC) (not shown [in FIG. 4]) or other multiplexing mechanism is used to direct user data to individual processing paths for different clusters,” (Li et al., col. 6, ll. 43-46), Li et al. fails to further disclose whether the MAC is a protocol level

² OFDM refers to orthogonal frequency domain multiplexing and DSSS refers to direct-sequence spread spectrum. Li et al., Abstract.

“located above the physical level for controlling the multi-carrier radio access” as required in each of Applicants’ independent claims 17 and 36.

In summary, Lilja et al., Chen et al., and Li et al., whether considered individually or in any combination, are legally precluded from anticipating or rendering obvious independent claims 17 and 36, as presently amended, for at least that reason that each of these cited references fails to disclose or suggest at least “at least one protocol structure comprising a first set of protocol levels for transmitting packet data according to a first type of radio access used in the at least one macrocell and a second set of protocol levels for transmitting packet data according to the multi-carrier radio access used in the at least one microcell, the second set of protocol levels including a physical level and at least one protocol level located above the physical level for controlling the multi-carrier radio access,” as claimed. New independent claim 39, although different in scope from amended independent claims 17 and 36, recites similar subject matter and is therefore allowable for at least the same reasons.

For at least the foregoing reasons, Applicants submit that independent claims 17, 36, and 39 in their present forms are allowable over the art of record.

Rejections Under 35 U.S.C. § 103(a) of Dependent Claims 19-35, 37, and 38

The Examiner rejected dependent claims 20, 21, 32-34, and 37 for being unpatentable under 35 U.S.C. § 103(a) over Lilja et al. in view of Chen et al. and, in addition, rejected dependent claims 22, 31, 35, and 38 under 35 U.S.C. § 103(a) as being unpatentable over Lilja et al. in view of Chen et al. and further in view of Li et al. Notwithstanding any teachings of Lilja et al., Chen et al., or Li et al. relative to the subject matter recited in dependent claims 19-35, 37, and 38, these claims depend on independent claims 17 or 36 and are therefore allowable for at least the same reasons

discussed above with reference to the pending 35 U.S.C. § 103(a) rejections of these independent claims.

Conclusion

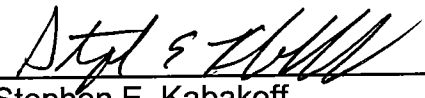
The preceding remarks are based only on the arguments in the Office Action, and therefore do not address patentable aspects of the invention that were not addressed by the Examiner in the Office Action. The claims may include other elements that are not shown, taught, or suggested by the cited art. Accordingly, the preceding remarks in favor of patentability are advanced without prejudice to other possible bases of patentability.

In view of the foregoing remarks, Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims. Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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